


Mirror, Mirror on the Wall, Which Skills Are Most Important in Aviation World?

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Abstract: Communication is treated as one of the most important issues in all aviation professions, including aircraft maintenance, where passenger safety is paramount. Employer dissatisfaction with the performance of engineers, including aviation graduates, as communicators in the workplace remains controversial. Therefore, this study was conducted to examine the types and functions of communication skills required in the aircraft maintenance workplace. Twelve participants, consisting of aircraft maintenance technicians and licenses aircraft engineers (LAE), were involved in semi-structured interviews. The data were analysed thematically and managed using ATLAS.ti software. The results showed that seven sub-themes were identified in relation to oral communication activities and five sub-themes in relation to written communication a written communication is as important as oral communication for aircraft maintenance personnel. In addition, both written and oral communication are expected to be clear, concise and precise. The identified need for communication skills would help aviation institutions develop solutions to meet the needs of the aviation industry.

Keywords: Communication Skills, Aircraft Maintenance, Oral, Written.

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Introduction

Communication skills are considered a significant skill for any profession, including the aviation industry. It is a fundamental prerequisite for aviation personnel to disseminate information, expertise, and experience to others.

They need to communicate on a frequent basis with their supervisors, colleagues, customers and team members. One of the most important components of worksite safety is communication (Yusof & Misnan, 2019). All aircraft workers must communicate in English to avoid accidents.

In the aviation industry, effective communication is important to ensuring timely flight operations as well as safe takeoff and landing (Torquato, 2004). This is also true in the aircraft maintenance industry, which requires strong English communication to avoid accidents (White, 2018). Miscommunication or a misunderstanding of communication can lead to death. According to Dalkilic (2017), as stated by Shukri et al. (2021), the average percentage of aircraft accidents related to maintenance issues was about 10% between 2009 and 2013. Notwithstanding the fact that maintenance problems cause only a very small proportion of commercial aviation incidents, accidents are often tragic (Cacciabue et al., 2003). This illustrates why maintenance works are crucial to aircraft safety and economic costs. Several aviation maintenance activities involve a significant amount of English, and maintenance personnel must be fluent in English to guarantee that tasks are performed accurately and smoothly (Shukri et al., 2021). Therefore, the communication skills of aviation personnel should be developed and refined during their studies.

Universities should work closely with industry to identify their communication needs and modify the curriculum to give aviation people the necessary profile of a technician or engineer. Hence, this study was conducted to investigate the functions that both oral and written communication skills perform in the workplace of aircraft maintenance. This study was also carried out to find out which skills are most important for maintenance technicians and licensed aircraft engineers in the aviation sector. The findings from the study should help educational institutions prepare their students for the future and ensure that their students have the professional skills they need to enter the workforce in the near future. This will be very important and helpful to the aviation sector, as there is still a lack of this type of study in Malaysia, especially in the field of aircraft maintenance.

Literature review

One of the things that leads to globalisation is aviation. It connects the world and makes it more accessible and open. The language of aviation is English. Aviation English is a highly specialized language used mainly in aviation or aeronautics. Since aviation is a restricted and highly contextualised perspective, efficient English for Specific Purpose (ESP) approach taught through content (Basturkmen, 2006). Aviation English has numerous applications and it is used not only by pilots and crews, but also by ground staff such as aircraft maintenance technicians.

The aviation industry needs to prioritise safety issues because there are many aircraft that need to be properly maintained so that hundreds of passengers can fly safely every day. To ensure this, the industry needs to hire qualified aviation maintenance professionals who are responsible for maintaining aircraft, performing routine maintenance, and repairing any defect parts that are discovered during inspection. Aircraft maintenance

technicians are considered to be hands-on workers. It is also worth noting that good aircraft maintenance personnels have excellent communication skills.

The disparity between what students have to learn and what industry requires implies that there is still a gap between students' skills and real situation in the industry (Kahrol et al., 2010). The study is similar with earlier findings in that it suggests that the communication skills of engineering graduates are generally poor, although engineering departments have explicitly worked to improve the communication skills of their staff (Donnel et al., 2011).

Lack of communication skills and a lack of understanding of the Aircraft Maintenance Manual (AMM) are two issues faced by aircraft maintenance students during their internships in the industry (Sasila & Mahmood, 2017). The findings of this study in the Malaysian context appear to be comparable to previous studies that found that polytechnic students in aircraft maintenance have not yet mastered certain oral and written communication skills and oral presentation skills (Sanmugam & Kadir, 2019).

Compared to studies explaining what engineering schools could do for communication education, there is little discussion of industry expectations for engineering graduates' communication skills, including in aviation (Donnel et al., 2011). Therefore, more focused research into the specific communication skills required by industry should help educational institutions rethink their approaches to training students to be better communicators.

Graduates must be able to write reports, letters, and emails in English (Masduki & Zakaria, 2020). Companies expect careful planning and confident presentation of work results. Employers expect detailed preparation and confident presentation of work results, using good non-verbal communication to gain and maintain audience attention and build rapport to achieve business success (Lenard & Pintaric, 2018). However, the study did not focus on a specific engineering industry, and the research was also conducted with a limited sample of participating employers. The data also revealed general feedback and no further action was taken in response to industry participants' input.

Employers require engaged listeners, capable first language speakers, and English-speaking facilitators, according to a study by Lenard and Pintaric (2018). In addition, the study discovered that employees are required to adhere to email etiquette, have excellent grammar and style in both written and oral communication, as well as use proper non-verbal communication methods. However, this study used a survey as its research method, which contained closed-ended questions that may be less valid than open-ended questions. In addition, this study did not focus on the perspective of the aviation stakeholders, which was highlighted in the problem statement in the previous section.

For the reasons stated above, this study was done to identify the various types and functions of communication skills used by aircraft maintenance personnel.

Method

Design of the study

The semi-structured interview, which is commonly used in qualitative research, was used in this study. It is one of the most often used qualitative data collection strategies to gather information about communication skills issues and needs in any industry. It provides a good representation of the main events as well as insights from the participants.

Participants

Purposive sampling was used to choose twelve (12) aviation workers for this study. They are all currently employed by twelve different Malaysian aviation companies that specialize in aircraft or helicopter maintenance, aircraft simulation, and aircraft parts manufacturing. The identity of the companies was not disclosed. Most of them were between 23 and 45 years old. To hide their identities, the participants were given pseudonyms such as "Boy" and "Moon.". A pseudonym is a fictional persona that is frequently employed by researchers or authors to preserve the anonymity of participants (Allen & Wiles, 2016). There were ten (10) male participants and two (2) female participants in this study. Most of them have 2 to 24 years of experience in the industry. Table 1 provides an overview of the aircraft technicians and engineers who were interviewed for this study. It shows the pseudonyms used in this study, as well as their age, years of industry experience and their position in the companies.

Table 1. Participant background information.

No	Pseudonym (Male/Female)	Years (Working experience)	Position
1	Mir (M)	3	Technician
2	Hah (F)	2	Junior technician
3	Moon (F)	5	Technician
4	Boy (M)	9	Senior engineer
5	Keman (M)	3	Assemble technician
6	Tony (M)	8	License aircraft engineer (LAE)
7	Mezar (M)	5	Industry engineer
8	Kerol (M)	2	Simulator technician
9	Ad (M)	9	License aircraft approval
10	Pejol (M)	24	License aircraft engineer (LAE)
11	Mad (M)	16	License aircraft engineer (LAE)
12	Kemal (M)	14	License aircraft engineer (LAE)

These participants were chosen for this study because they had prior knowledge in their respective professions and had completed their courses in aircraft maintenance at a Malaysian aviation school approved by the Malaysian Civil Aviation Authority (CAAM).

Data collection and analysis

All participants were interviewed individually as part of the data collection process. Each interview lasted 60 to 80 minutes, and they were asked questions about function of oral and written communication that they commonly experienced. They were also asked what skills were most important in the industry in terms of communication.

Following the interview, it was transcribed verbatim and distributed to participants for editing, refinement, addition or revision. The data were analyzed using a six-step thematic analysis (Braun & Clarke, 2006) and ATLAS. It helped with data management and presentation.

Results

The results of the qualitative research revealed two significant themes that emerged from the transcribed data and were categorised as oral communication and written communication. Based on the interviews conducted with twelve aviation personnel, 7 sub-themes were identified in relation to oral communication functions and 5 sub-themes in relation to written communication functions. Figure 1 shows the three themes of aviation industry workplace communication.

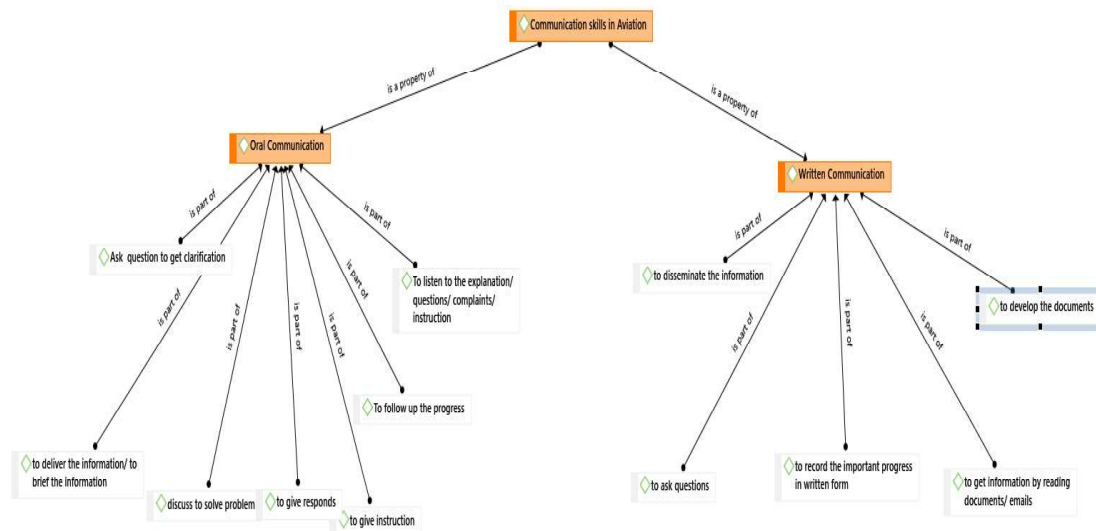


Figure 1. Network view of the communication skills in aviation

Theme 1: Oral Communication

To ask questions

All participants agreed that oral communication is essential for workers in the aviation industry, especially in aircraft maintenance, to ensure that all instructions and descriptions of work procedures and tasks are thoroughly

understood and that misunderstandings can be avoided, thereby preventing accidents in the workplace. Most of them said that they prefer to ask questions directly if there is confusion or they do not understand the tasks they have to perform. One of the participants shared that, as the leader of an engineering team, he preferred for his team members to just ask him directly when something was not clear, adding that two-way communication is important in teamwork.

..... We are quite straightforward, so if there's anything you don't understand, please ask us again. We had also two-way communication, whatever it was.... (TONY)

One of the participants also mentioned that after the morning briefing, which they had every day, the leader asks the team members if they have any problems before they start the maintenance tasks. This shows that although the maintenance team has to deal with machines, planes, tools and equipment and can refer to manuals, they still have to use oral communication to make sure they are doing the right job.

..... After the briefing, he will ask on the floor, "Any questions or problems, just tell me," to which we all listen. As a result, we make inquiries or offer suggestions. (MIR)

To deliver the information/ brief the information

Besides that, the aircraft maintenance technician and engineers also use oral communication to deliver or to brief the information. A team briefing brings leaders and their teams together face-to-face to share information, ask questions, and gather feedback. One of the technicians involved explained that the briefing is important for the team to be informed about the current progress of the project and the team's target for production in a given week or period.

.....He will typically give us a briefing on Monday about how many components or wings we need to manufacture each week. So, the information is conveyed to the subordinate or another staff member using communication. ensuring that the staff is informed about the project's progress... (KEMAN)

To discuss and solve problem

In addition, the maintenance team also uses oral communication to discuss and solve problems they face while performing the task. Discussion is important for teamwork as it encourages the team to work together and coordinate their efforts. It fosters a climate where everyone can present their point of view on the chosen topic, creating a productive environment for teamwork. One of the technicians involved explained that discussions with the partners or team members are important to ensure that he is doing the job properly without wasting time or even the cost.

...As you clarify the work you want to do, talk with your partner, or teams, and the engineer from the

quality department to solve a specific problem... (KEMAN)

To give responds

Participants also agreed that they needed to know how to react and respond to the questions of others, such as their supervisors, clients, and team members. Hah mentioned that her supervisor observes her work and makes sure she is doing it right by asking questions. Therefore, she needs to make sure that she knows how to respond to these questions.

....I have to respond and explain to everybody who questions me. Listen to the briefing in the morning. After reading the work scope at the beginning of the day, the SV will ask me what I understand or have a team member have a conversation with me. I will then explain, carry out the assignment, and the SV will sit next to me and watch what I did... (HAH)

To give instructions

In addition, one of the participants agreed that he uses oral communication to give instructions to his teammates and ensure that they can complete the tasks in the allotted time. He shared his strategies and different approaches to avoid the culture of procrastination or that the company has to pay penalties to the clients if the work is not done in the given time.

.... Similar to what I previously said, I usually talk in a normal tone to give instructions at the first level, and if there is still no action at that point, I will give more strict instructions. I need everything finished in a half-hour. Please do that for me... (TONY)

To follow up the progress

Moreover, some of the engineers involved in the interviews agreed that they use face-to-face conversations to get updates from their technicians or other engineers on the current status of certain projects. Face-to-face communication conveys a wealth of information, including non-verbal cues and body language, and allows for immediate feedback that is as rich as the initial message. One of the engineers mentioned that he always uses face-to-face communication to get updates on the status of certain projects, as he learns about the progress immediately.

It is important for me to communicate with my team member to know about the progress of project. If I just let them do the job without follow up, we might miss the deadline that we need to complete the job. Then, we might get the penalty from the clients.... (TONY)

To listen the explanation/ questions/ complaints/ instruction

Furthermore, most participants also agreed they must have good listening skills to understand the instructions , questions, explanations or complaints from the others to ensure that they perform a proper job as a team. One of the participants called his position as the mediator between the technicians and top managements. The technicians usually will approach him to complaints about certain problem during work and he will discuss with the top management to come out with better solutions.

....So, the industrial engineer is the one who they may complain to most easily. Alright, Mezar , these two improvements can be made to this tool. They therefore take note. The meeting will then be called and announced to all departments. There will be an improvement as a result of our conversation....
(MEZAR)

In conclusion, this study has uncovered seven different functions of oral communication that aviation personnel frequently use. They must also rely on oral communication in their practical work to ensure that tasks are completed successfully and without incident.

Theme 2: Written Communication

Written communication is one of the communication skills that people use to convey information because it is a very tangible type of evidence. The accuracy of the information transmitted remains the same for all recipients, as the information does not differ from person to person.

This study describes five functions of written communication used in industry among maintenance technicians and engineers. These functions of written communication are described in detail below.

To disseminate the information

Sharing certain information with a group of people or with individuals, internally or externally, is important in the workplace, whether through printed or electronic documents. Most of the participants agreed that they need to use English when they write emails or write reports. One of the participants said that she has to write a report before passing the tasks to the other person in the next shift. She also added that she has to write an email to the person in charge of another department if there are major problems.

English only. Usually when I have to hand the task over before the shift is finished. Make a report. In addition, I have to mention a part failure when necessary. We must therefore write in English. Well, um, it is required that I use English in my email correspondence with the PIC for the Engine Department. (HAH)

It seems that written communication is important to pass on information to others when working in a team. To

ensure that they completed the task, they also had to use written communication.

To ask questions

In addition, the maintenance technicians and engineers involved in this study agreed that they use written communication to ask questions, especially by email and also by WhatsApp. Emails and letters are written records of communication that can be used to keep important emails. This can be useful if we need to refer to something someone said in a previous message and provide evidence.

One of the participants mentioned that sometimes he sometimes received task from foreign centres and when he has a problem, he contacts another technician from a foreign centre to get the suggestion to solve the problem.

When working with a foreign technician, the task is frequently requested from another centre, such as Singapore, Hong Kong, and so forth, via email and TEAMS. I gave a brief explanation of the situation and requested their suggestions for how to resolve it. (KEROL)

To record the important progress

In addition, written communication is also important to record certain stages or progress in certain tasks. It can serve as a guide or reference for other staff. At the same time, it is also important for audits that are carried out at certain periods. There are many types of reports that the aircraft maintenance technician and engineers need to complete when doing certain tasks. For example, Inspection Report Card (IRC), Job Scope, Letter of Intent, Task Card and Shop Order. One of the engineers shared his experience of doing the repair based on the report written by another person in the quality department. This shows that report writing is one of the written forms of communication used from one person to another to fix certain defect.

...The PIC from the quality control department comes to inspect the product. If a defect is discovered, the PIC will produce a report describing it. For example, in one unit, the sealant has a problem and is damaged. The PIC will record the defect as a result. As the technician, it is my responsibility to fix the defect and then document what I did in the report... (KEMAN)

To get information by reading documents

Besides that, all participants felt that written documents are important in their position as they rely heavily on documentation before starting a work process, such as the aircraft maintenance manual, work scope and technical log, service bulletin, manufacturing order, task card and many others. One participant noted that he started his day by studying the manual before starting maintenance work to ensure that he followed the necessary steps and procedures.

All of the manuals must be read because they must be printed out before we can begin the task. We do the tasks in pairs. Our partner read the instructions before we started the job. We need to communicate to one another regularly. After reading it, take this and this out. One other listen and completes the task...(MIR)

To develop the documents

Moreover, one of the engineers involved in this study explained that he is responsible for developing the manuals and policies of the company, as the company is new and everything is still in the early stages. He develops the manuals based on the aircraft the company will be working with. Then he sends them to the authorities and prepares the presentation to get approval.

...Yes, I am the one that write the policy, manual. Because this company is new company, so everything start from the scratch. (BOY)

To summarise, although written communication has fewer subtopics than oral communication, it is still important to use them as official documents so that people in aviation can quickly recognise what is right and what is wrong.

Written communication is as important as oral communication.

This study also revealed that most participants felt that written communication was as important as oral communication and that they could not be separated. Since they need to refer to the manual before starting maintenance tasks, they still need to consult verbally with teammates and supervisors to make sure they will do the right thing. The same goes applies to the oral communication. They cannot simply carry out tasks based on the verbally delivered message but must refer to the written documents to avoid misunderstandings and communication obstacles such as the noise that often occurs in their workplace. In addition, the important documents prove that there are references to the performance of certain tasks, such as the instructions in the email sent.

...Balance. To complete the task, we must first check the written text. Then, to comprehend the tasks, we listen to the instructions, ask questions, and chat with others. The task is then reported, written...(MIR)

...In my role, I communicated through two different channels. written and verbally. You must put both of these into practise if you work in the industry. Then it will be finished. Because we wouldn't be able to fully understand what was said if we only provided a written report. If we just communicate verbally,

we must be incorrect or have forgotten what was said previously. Perhaps after talking about this and that, we forgot what he had just said?... (AD)

Discussion

As mentioned above, the participants considered both written and oral communication equally important. They agreed that the success of task performance depends on how effective communication is at work. Good communication skills in engineering are becoming increasingly important as the engineering industry evolves. Good communication skills are needed to explain ideas and projects to a wider audience. These skills are important to ensure that all project participants are on the same page and working towards the same goal. Communication skills should be valued equally with technical expertise especially for those who want to move up to the position of manager or team leader. For example, the leader discuss new projects with clients and their own supervisors. They also pass on project specifications and deadlines in their reports, while keeping their bosses and clients informed. Misunderstandings, frustration, tension, and even accidents can be the result of poorly delivered messages.

Based on the findings discussed in the previous section, this points to the importance of English language use in the industry, as it involves not only local companies but also international companies from all over the world. Engineering students who were fluent in English were able to progress in their careers and compete in the industry (Chan, 2019; Saleh & Murtaza, 2018 and Zahari et al., 2016).

Asking questions is one of the functions of oral communication in the workplace to ensure that technicians and engineers follow the correct procedure. By asking questions, they are given the opportunity to understand others' perspectives and work authentically with individuals. Employees must be willing to ask questions and actively participate in team interactions to improve their general abilities (Zakaria et al., 2018).

Apart from this, it is also important to have a high level of self-confidence in the task done and to explain it properly to answer the supervisor's request or relate the task done. People with a lot of confidence are needed because they can captivate others and convince them of their point of view or reasons (C. Alih et al., 2018).

Everyone in aviation, from technicians to aircraft engineers to senior engineers in management positions, has to read and produce a variety of documents. This includes developing structured reports to communicate data. One of the technicians mentioned that after completing a task, she has to write down information to indicate an error, a defect, or an additional action that the next person should take. The logbook is one of the official records of all aircraft data, and the information it contains is used to assess the condition of the aircraft, the date of inspection, and so on (Terenzi, 2021).

Nevertheless, writing activities in aviation schools do not adhere to the structure required by the aviation industry and students are not adequately prepared to write reports or other work related to their assignments

(Vieira & dos Santos, 2010). According to Ruiz (2004), the written assignments in aviation schools should accurately reflect the type of communication that these professionals may encounter in their work. According to Terenzi (2021), this is consistent with Yusuf et al. (2018) that English writing skills are important in today's global business environment, especially when writing memos, emails, notices, minutes, agendas, contract documents, reports (technical, daily, and problem reports), and contracts. Consequently, institutions need to pay more attention to this issue and improve in order to train future aviation employees who are well prepared before they enter the industry.

Both written and oral communication must be clear, concise, and precise. When messages are clear, concise, and precise, there is no opportunity for misinterpretation or change of message, which reduces the potential for conflict. If conflict does occur, effective communication is essential to ensure that it is resolved in a respectful manner.

Conclusion

The study found that aircraft maintenance graduates need oral and written communication skills to succeed in the industry. The study has helped to identify the functions of oral and written communication and the types of situations in which employees need to communicate in the industry. It can help stakeholders, especially teachers and curriculum developers, improve university English courses by identifying the types of communication skills used in the workplace and carefully considering which aspects should be retained and which should be improved or outsourced. Language training modules that teach functional skills to aircraft maintenance students help them meet employment standards.

Recommendations

This study used a qualitative technique with semi-structured interviews to get a complete picture of the case. The generalisability of industry players' perceptions of communication skills in the workplace was not the intended aim of this study due to the small number of participants. Furthermore, this study was mainly concerned with communication skills in the aviation industry, particularly in aircraft maintenance. Future studies should investigate workplace communication skills with a larger sample size, both qualitatively and quantitatively. Additional research is needed to evaluate the effectiveness of university courses that focus on communication skills from an employer's perspective and meet industry needs.

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References

- Allen, R. E., & Wiles, J. L. (2016). A rose by any other name: Participants choosing research pseudonyms. *Qualitative Research in Psychology*. <https://doi.org/10.1080/14780887.2015.1133746>
- Chan, C. S. C. (2019). Long-term workplace communication needs of business professionals: Stories from Hong Kong senior executives and their implications for ESP and higher education. *English for Specific Purposes*, 56, 68-83. <https://doi.org/10.1016/j.esp.2019.07.003>
- Basturkmen, Helen. (2006). *Ideas and Options in English for Specific Purposes*. New York and London: Routledge.
- C. Alih, N. A., Md. Yusof, M. A., Abdul Raof, A. H., Wan Zakaria, W. Z., Shamsudin, S., Mohd Omar, N. A., Ismail, F., & Jobil, J. (2018). Industries' Requirements and Expectations of Graduates: A Revisit. *LSP International Journal*, 5(1). <https://doi.org/10.11113/lspi.v5n1.66>
- Cacciabue, P., Mauri, C., & Owen, D. (2003) The development of a model and simulation of an aviation maintenance technician task performance. *Cognition, Technology and Work*, Vol. 5, No. 4, 2003, pp. 229-247.
- Dalkilic, S. (2017). Improving aircraft safety and reliability by aircraft maintenance technician training. *Engineering Failure Analysis*, Vol. 82, 2017, pp. 687- 694.
- Donnell, J. A., Aller, B. M., Alley, M., & Kedrowicz, A. A. (2011). Why industry says that engineering graduates have poor communication skills: What the literature says. *ASEE Annual Conference and Exposition, Conference Proceedings*. <https://doi.org/10.18260/1-2--18809>
- Kahiroi, M.S. et al. 2010. Globalization's Impact on Soft Skills Demand in the Malaysian Workforce and Organizations: What Makes Graduates Employable? *Proceedings of the 1stUPI International Conference on Technical and Vocational Education and Training Bandung, Indonesia, 10-11 November 2010*. 210-215.
- Lenard. D.B., & Pintaric.L. (2019). Communication skills as a Prerequisite for the 21st Century Engineer. *International E-Journal for Research in E L T*. 5(May), 137–152
- Masduki, M., & Zakaria, N. (2020). Fulfilling the demand for workplace communication skills in the civil engineering industry. *Pertanika Journal of Social Sciences and Humanities*, 28(4), 3069–3087. <https://doi.org/10.47836/PJSSH.28.4.32>
- Ruiz, L.E., 2004, "Perceptions of communication training among collegiate aviation flight educators", *Journal of Air Transportation*, Vol. 9, N° 1, pp. 36-57.
- Saleh, N. S., & Murtaza, S. F. (2018). English language use in Malaysian government and private civil engineering workplaces. *International Journal of Education & Literacy Studies*, 6(3), 84-91. <http://dx.doi.org/10.7575/aiac.ijels.v.6n.3p.84>
- Sanmugam, S. T., & Kadir, A.K. (2019). Evaluating the workplace communication needs of aircraft maintenance engineering students at a Malaysian Polytechnic. *9th National Conference in Education-Technical & Vocational Education and Training (CiE-TVET)*
- Sasila, I.F., & Mahmood, A.S. (2017) The problem faced by Unkl Miat students during on Job Training (OJT) -

- students and industrial's Perspectives. *International Journal of Management and Applied Science*, ISSN: 2394-7926.
- Shukri, S. A., Ramli, F. I., Wan Badaruddin, W. T. F., & Mahmood, A. S. (2021). Importance of English language in Aviation Maintenance: A Malaysia Case Study. *Journal of Aeronautics, Astronautics and Aviation*, Vol. 53(2), 113–120. [http://doi.org/10.6125/JoAAA.202106_53\(2\).02](http://doi.org/10.6125/JoAAA.202106_53(2).02)
- Terenzi, D. (2021). Overcoming Challenges in English for Aviation Maintenance: Technical Publications Selection for the Construction of a Corpus and Its Use to Teach Language Aspects Considering Learners Needs. *Open Journal of Applied Sciences*, 11(10), 1122–1134. <https://doi.org/10.4236/ojapps.2021.1110084>
- Torquato, F. G. (2004). *Tratado de Comunicação Organizacional e Política*. São Paulo, Thomson.
- Vieira, A. M., & dos Santos, I. C. (2010). Communication skills: A mandatory competence for ground and airplane crew to reduce tension in extreme situations. *Journal of Aerospace Technology and Management*, 2(3), 361–370. <https://doi.org/10.5028/jatm.2010.02038110>
- Wijesinghe, P.S., & Jayawardene, T.V.P (2019). “Sri Lankan Young Engineers' Perception on Communication Skills; A Qualitative Survey”. *Proceedings of the 2nd South Asia Conference on Multidisciplinary Research 2019 Vol 2*.
- White, A. R. (2018) A review of an aircraft maintenance related English writing course [Conference session]. *CreTech 2018 6th International Conference on Creative Technology*.
- Yusuf, N. K., Md Yunus, M., & Embi, M. A. (2018). Workplace writing in L2 experiences among millennial workforce: Learning to write in English. 3L: *Language, Linguistics, Literature*, 24(1), 145-161. <https://doi.org/10.17576/3L-2018-2401-11>
- Yusof, N., & Misnan, M. S. (2019). A Review of Safety Issues among Small Grade Contractors in Construction Industry. *MATEC Web of Conferences*, 266, 05008. <https://doi.org/10.1051/mateconf/201926605008>
- Zahari, S. D. Z., Mohd, Z. A. A., Abu, B. N., Basri, I. S., & Omar, S. (2016). English language communication needs at workplace as perceived by students. *Journal of Science & Engineering Technology*, 3(2), 27-31.
- Zakaria, N., Masduki, M., & Ismail, N. N. (2018). Eliminating shyness through co-curricular activities towards enhancing the career development of engineering students. *IOP Conference Series: Journal of Physics*, 1049(1), 012057. <https://doi.org/10.1088/1742-6596/1049/1/012057>